THE IMPACT OF LIQUIDITY ON PROFITABILITY OF MICRO FINANCE INSTITUTION IN ETHIOPIA

A RESEARCH PAPER SUBMITTED TO ACCUNTING AND FINANCE DEPARTMENT FOR THE PARTIAL FULLFILMENT OF BACHELOR OF ART (BA) DEGRE IN ACCUNYING AND FINANCE

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Statement of Declaration

I ABEBA GETNET, have carried out independently a research work entitled "The impact of liquidity on profitability microfinance: The case of Microfinance Institutions in Ethiopia" in partial fulfillment of the requirement of BA Degree in Accounting and Finance with the guidance and support of the research advisor. I do hereby declare that this research paper is my original work and that it has not been submitted by any other person for an award of degree in this or any other university/institution.

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Approval Sheet

This is to certify that the paper prepared by ABEBA GETNET: the impact of liquidity on profitability micro finance***:*** *in cases of micro finance in Ethiopia* and submitted in partial fulfillment of the requirements for the Bachelor degree in Accounting and Finance complies with the regulations of the University and meets the accepted standards with respect to originality and quality. Approved by:

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Acronyms

ACSI: Amhara Credit and Saving Institution

ADCSI: Addis Credit and Saving Institution

AEMF: Association of Ethiopia microfinance

AVFS: Africa village financial service

CGAP: Consultative Group to assist the poor

DAR: Deposit to asset ratio

DECSI: Dedebit Credit and Saving Institution

DER: Debt to equity ratio

DLR: Deposit to loan ratio

LNTA: Natural logarithm of total asset

MFIs: Microfinance institutions

NBE National bank of Ethiopia

NPM: Net profit margin

NIM: Net interest margin

OCSSCO: Oromiya Credit and Saving S.Co.

PEACE: Poverty Eradication and Community Empowerment X

OMO: Microfinance Institution, Share Company

ROA: Return on asset

ROE: Return on equity

SFPI: Specialized Financial and Promotional Institution

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Abstract

Micro-Finance Institutions (MFIs) play a vital role in the financial system by providing financial services to those who cannot access from the conventional banking service in developing countries. Liquidity and profitability of businesses are imperative concern in the development and continued existence of a microfinance and the capability to hold the substitution involving the two immense importance's for the management. The main objective of this study was to examine the impact of liquidity on microfinance institution profitability the case of 12 MFIs in Ethiopia. The research was used the explanatory research design, balanced fixed effect panel regression model and Views 8 econometric software was used for the data of 12 microfinance institutions in the sample covered the period from 2007 to 2016 from the total population of thirty four microfinance institutions operating in the country. The study was used the Return on asset as the proxy of profitability to measure financial healthiness of MFIs which was dependent variable of the study. The study finds that deposit loan ratio have significant negative impact on profitability of MFIs, whereas debt to equity ratio has negative influence on profitability of MFIs but statistically insignificant. Size and deposit asset ratio have positive and significant impact on profitability of MFIs in Ethiopia. Based on the findings, the study recommends that, microfinance institution management should pay greater attention to those significant variables in determining their optimal liquidity and optimize level of profitability of their micro finance institution of Ethiopia. Finally concluded that finding of the study indicates the liquidity has significant impact on profitability of microfinance institutions in Ethiopia. As a result the study recommends that microfinance should put strategies in place for monitoring, reporting and reviewing liquidity levels to ensure the long and short term stability of the entire system

Keywords: Micro finance, liquidity, profitability, returns on as

CHAPTER ONE

1. INTRODUCTION

1.1background of the Study

Micro-finance refers to financial services such as cash loans, deposit savings accounts, and insurance made available in relatively small amounts to poorer populations throughout the developing world. Micro finance basically relates to all financial intermediary services such as savings, credit, funds transfers, insurance, pension and remittances among others by financial institution in both rural and. urban areas to low income earners (Robinson, 2001).

Micro finance however, has a number of origins. For hundreds of years, poor people in Africa and Asia had formed savings and lending groups. Moneylenders and the informal curb market had provided quick services at very high costs to poor households who had no access to mainstream financial institutions. In the last century, cooperatives and credit unions in developing countries have focused on savings mobilization and lending with rural households, many of which are poor. Over the years, governments have created lending programs for poor entrepreneurs and producers; most of these programmers have suffered from subsidized interest rates, political patronage and low repayment (Janson, 2007). Most of the poor population and small enterprises in Sub-Saharan Africa countries have very limited chance to access deposit and credit facilities and other financial services provided by formal financial institutions (Basu et al, 2004). The financial institutions are highly deal with ensuring adequate liquidity assets than non- financial institutions to meet the customers' demands to survive in competitive environment successfully. In financial institutions, adequate liquidity means capacity of the institutions to convert their assets into cash to meet the needs of customers wanting to withdraw funds, provide new loans demand and borrowers wanting to be assured that their credit or cash needs will be met, (Mncn shatna ,20015, p.6).

Liquidity is the ability of an institution to generate sufficient cash or its equivalent in a timely manner at a reasonable price to meet its commitments as they fall due. These commitments can be met either by drawing from a stock of cash holdings, by using current cash inflows, by borrowing cash or by converting liquid assets into cash. Liquidity is the probability that an asset can be converted into an expected amount of value within an expected amount of time. Cash and cash equivalents are the most liquid assets within the asset portion of a firm's

balance sheet. The level of liquidity can be an indicator of the success or the failure of the firm (Mainelli, 2007). Without liquidity, money can become tied up in systems that are difficult to cash out of and even more difficult to assess for actual cash value (Chaplin, Emblow and Michael, 2000), The liquidity is sufficient investment in current assets to settle the short-term obligations.

The large holding of current assets strengthens the firm's liquidity position but also reduce the overall profitability. According to the economist Assaf Neto (2003, p.22), the liquid assets are usually less profitable than fixed assets. It is that investment in current assets does not generate production or sales thus generate less profit. Hence generally assume that a conflict exists between liquidity and profitability when managing current assets. Therefore, a proper trade off must be attained between liquidity and profitability. It is requiring the financial managers have to be develop sound techniques on managing of current assets.

In Ethiopia, micro finance institution plays important primary role as financial intermediaries in the economic growth process, channeling funds from savers to borrowers for investment. As financial intermediaries, it plays an important role in the operation of an economy. In such away, micro finance are key providers of funds and their stability of paramount importance to the financial system. As such, an understanding of impacts of their liquidity and the drivers of MFIs liquidity for that matter is essential and crucial to the stability of the economy (wolday&Anteneh 2013). However, substantial studies have not been conducted to investigate the impact of liquidity on micro finance intuitions profitability in Ethiopia. This research will have been examining the impact of liquidity on profitability of Ethiopia micro finance institutions.

1.2 statement of the problem

The financial system enables an economy to be more productive as it allows investors with resources to use saving from those with few prospective of investing. Moreover, with regard to liquidity, the fundamental role of micro finance institution is the maturity transformation of short -term deposits into long-term loans makes inherently vulnerable to liquidity risk, both of an institution-specific nature and that which affects markets as a whole Asnakew. A(2012).

In recent years, the world economy has experienced a number of financial crises. Often, at the center of these crises are issues of liquidity provision by the financing sector and a financial

market. For example, when crises are likely to arrive, microfinance seem less willing to lend and hold more liquidity due to the low level of liquidity in the market for external finance (Acharyaet al,2011).

Berger and Bouwman (2009b); found the connection between financial crises and microfinance liquidity creation: the subprime lending crisis was preceded by a dramatic build-up of positive abnormal liquidity creation, which implies that “too much” liquidity creation may also lead to financial delicate. Liquidity and profitability are very important in the development, survival, sustainability, growth, and performance of microfinance. Profitability does not translate to liquidity in all case. Therefore, liquidity should be managed in order to obtain an optimal level. This can be adversely affected both micro finance profitability and the capital. Therefore, it becomes the top priority of micro finance management to ensure the availability of sufficient funds to meet future demands of providers and borrowers, at reasonable costs.

A reduction in funding liquidity then caused significant distress (Belaynesh 2011). More generally, this also suggests that an even more liquid microfinance might not always be desirable for the efficiency of the financial system. (Alemayehu et al 2008); In order to undertake their operations properly and profitably, microfinance has to maintain their optimal liquidity. When we say microfinance is liquid, they are able to serve the demand of new borrowers and the withdrawal of cash by their depositors without affecting their day to day activities. To do so they have to keep sufficient liquid assets on their balance sheet.

What is more necessary behind maintaining their liquidity is that properly identifying and managing important factors affecting the liquidity position of microfinance (Asphachs 2005).Many studies have been conducted by using different methods and data from developed and developing countries to define the impacts of liquidity on financial performance of firms. They investigate the link between the choice of leverage ratios, profitability, firm size, and other factors (such as non-debt tax shields, firm growth and collateral values of assets etc.). However, the results of their studies provide contradictory and mixed that consists negative, positive and mixed correlation between financial performance (profitability) and the liquidity ratio of firms in developed and developing countries.

Shin and Soenen (1998), investigated association involving a measure of the cash gap and company financial performance in their study of a large sample of listed American businesses for a twentyyear duration starting from 1975 to 1994; the results indicated a negative relationship between liquidity and profitability. Obida and Owolabi (2012) carried out a study of manufacturing companies quoted on the Nigerian stock exchange on the effects liquidity have on company financial performance, using descriptive research they found that liquidity as measured in terms of cash conversion cycle and cash flows have a significant effect on company financial performance and they concluded that financial performance as measured by profits may be improved by having short cash conversion cycle.

In Ethiopia perhaps as to the researcher's knowledge, there are few researches conducted where most of them are emphasized in determinants of liquidity. Solomon Kibret (2018) the impact of liquidity on profitability of Ethiopian Commodity Exchange traders. For his finding liquidity has no impact on profitability. According to HabtamuNigussie (2012), study on determinants of bank profitability and liquidity, there is a negative correlation between microfinance profitability measures; return on asset, and liquidity. Hence, as to his finding liquidity level of private commercial banks included in the study (loan to deposit ratio) has no significant relationship with ROA. Therefore, one of the aim of this study is to investigate the relationship between liquidity measured by debt to equity ratio (DER), total deposit to asset ratio (DAR)deposit to loan ratio (DLR) size (LNTA) and dependent variable profitability measured by return on asset(ROA) of Ethiopian microfinance industry over the period 2007-2016 years. Therefore, based on the above studies, there is no empirical research done in Ethiopia concerning the impact of liquidity on profitability of microfinance institutions (MFIs) in Ethiopia, which motivates the researcher in filling the gap by put his contribution on the impact of liquidity on profitability of Ethiopian microfinance institution.

1.3 Objectives of the study

1.3.1 General objective of the study

The general objective of this study was to investigate the impact of liquidity on profitability of Microfinance Institutions in Ethiopia.

1.3.2 Specific objectives

- To investigate the impact of deposit to loan ratio on profitability (ROA) of microfinance institution in Ethiopia.
- To investigate the impact of debt to equity ratio onROA of microfinance institution in Ethiopia.
- To determine the impact offirm size profitability of microfinance institution in Ethiopia.
- To investigate the impactof deposit to asset ratio on profitability of microfinance institution in Ethiopia.

1.4 Hypothesis of the study

In order to achieve the objectives of the study, a number of hypotheses were test regarding the impacts of liquidity on profitability of Ethiopia MFIs relying on different empirical research and theoretical review. Accordingly, there were four hypotheses which are included:

H1: There is a positive significant relationship between deposit to loan ratio and profitability of Ethiopian MFIs.

H2: There is a negative significant relationship between debt to equity ratio of microfinance institutions and profitability of Ethiopian MFIs.

H3: There is a positive significant relationship between size and profitability of Ethiopian MFIs.

H4: There is a positive significant relationship between deposit to asset ratio of microfinance institutions and profitability of MFIs in Ethiopia.

1.5 Significance of the study

- ✓ This study would help strength the microfinance sector by providing information on the impacts of liquidity on the profitability of microfinance institution in Ethiopia.
- ✓ In light of this, the finding of the study will be advantageous to the stakeholders like donors, managers and government in that it helps them to detect what factors affect the profitability of MFIs in Ethiopia.
- ✓ It helps to acquire knowledge, experience and skill for further study and to check the quality those graduating class students
- ✓ It also help for the researchers as a reference

1.6 Scope of the study

The scope of this study was limited to examine the impact of liquidity on profitability of sample twelve micro finance institutions in Ethiopia over the period of ten years, 2007G.C to 2016 G.C. Even if there are so many factors that impact on MFIs profitability, but this study is limited only to factors such as, loan deposit ratio, deposit asset ratio, debt to equity ratio to measure the level of liquidity on profitability of the institution and size of MFIs is use as a control variable to ensure the accuracy of the results of the regression model.

1.7 Organization of the study

This study was organized into five chapters. Chapter one presents research introduction, statement of the problem, objective of the study, hypothesis, scope and limitation, and significance of the study. Following on this, chapter two of the thesis presents review of theoretical and empirical literatures on liquidity and profitability (ROA). Chapter three presents the research methodology. Then, chapter four present the results and discussion of the study and finally, chapter five present conclusions and possible recommendations.

1.8 Limitation of the Study

In conducting the study, there was lack of financial data for recent years (2007 to 2016).Therefore, the study was limited to take data for 10 years (2007-2016).Moreover, lack of sufficient relevant and up to date published literatures mainly in the context of Ethiopia regarding MFIs liquidity and absence of full information displayed on websites is the major constraints during the study.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 INTRODUCTION

Under this chapter the theoretical and empirical evidences focusing on the impact of liquidity on micro finance institution profitability. Accordingly, the first section, describes overall theoretical overview of micro finance concepts. The second section presents review of empirical studies of liquidity and profitability of MFIs.

2.1.1 Theoretical Overview of Microfinance

2.1.2. Definition of Microfinance

Different authors and organizations have defined Microfinance institutions in different ways. However, the concept or the meaning of the definitions is usually the same in which microfinance refers to the provision of financial services; primarily savings and credit to the poor and low income households that don't has access to commercial banks service. Consultative Group to Assist the poor (CGAP,2012) defined "microfinance" the provision of formal financial services to poor and low-income people, as well as others systematically not benefited from the financial system. As noted, Microfinance it is not only providing a range of credit products (for consumption, smoothing for business purposes, to fund social obligations, for emergencies, etc.) only, but also savings, money transfers, and insurance.

The other researcher defined about MFIs is that, it offers financial services to poor people. The aim of Access to financial services for poor people is help to alleviate risks, build their assets, improve their income, and furthermore contribute to development of the focal community (Cull et al, 2009).

According to Robinson, (2001) definition: Microfinance refers to small-scale financial services primarily credit and savings-given to people who involved in farm or fish or herd; who work in small enterprises or microenterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at the local levels of developing countries, both rural and urban (Robinson, 2001 p.9).Ethiopian Proclamation No. 626/2009 defines micro financing business as "the provision of financial services like accepting savings, extend credit, drawing and accepting drafts payable, providing money transfer services and others specified in the Article 3(2) of the proclamation.

2.2. Liquidity Theories

Longworth (2010) Bernanke (2008) noted that liquidity was an instrumental factor during the recent financial crisis. As uncertainty led funding sources to evaporate, many banks quickly found themselves short on cash to cover their obligations as they came due. In extreme cases, banks in some countries failed or were forced into mergers. As a result, in the interest of broader financial stability, substantial amounts of liquidity were provided by authorities in many countries, including Canada and the United States. Since liquid assets such as cash and government securities generally have a relatively low return, holding them imposes an opportunity cost on a bank. In the absence of regulation, it is reasonable to expect banks will hold liquid assets to the extent they help to maximize the firm’s profitability.

2.2.1 Quantitative Liquidity Theories

Baumols (1952) inventory management model and Miller and Orrs (1966) model which recognized the dynamics of cash flows are some of the earlier research efforts attempted to develop models for optimal liquidity and cash balances, given the organizations cash flows the focus was on using quantitative models that weighed the benefits and costs of holding cash (liquidity). Barclay and Smith (1995), however provide evidence that firms with the highest and lowest credit risk issue more short-term debt while intermediate credit risk firms issue long-term debt. If we consider that firms with the highest credit rating have better access to borrowing, it is expected that these firms will hold less cash for precautionary reasons, which would cause debt maturity to be positively related to cash holdings.

2.2.2 Liquidity Motive Theories

The economics and finance literature analyze possible reasons for firms to hold liquid assets. Keynes (1936) identified three motives on why people demand and prefer liquidity. The transaction motive, here firms hold cash in order to satisfy the cash inflow and cash outflow needs that they have. Cash is held to carry out transactions and demand for liquidity is for transaction motive. The demand for cash is affected by the size of the income, time gaps between the receipts of the income, and the spending patterns of the cash available. The precautionary motive of holding cash serves as an emergency fund for a firm. If expected cash inflows are not received as expected cash held on a precautionary basis could be used to satisfy short-term obligations that the cash inflow may have been bench marked for. Speculative reason for holding cash is creating the ability for a firm to take advantage of special opportunities that if acted upon quickly will favor the firm. Almeida et al. (2002) proposed a theory of corporate liquidity demand that is based on the assumption that choices regarding liquidity will depend on firm's access to capital markets and the importance of future investments to the firms. The model predicts that financially constrained firms will save a positive fraction of incremental cash flows, while unconstrained firms will.

2.2.3 Shift ability Theory

This theory posits that banks liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This point of view contends that banks liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount Market stands ready to purchase the asset offered for discount. Thus this theory recognizes and contends that shift ability, marketability or transfer ability of microfinance assets is a basis for ensuring liquidity. This theory further contends that highly marketable security held by microfinance is an excellent source of liquidity. Dodds (1982) contends that to ensure convertibility without delay and appreciable loss, such assets must meet three requisites. Liability Management Theory Liquidity management theory according to Dodds (1982) consists of the activities involved in obtaining funds from depositors and other creditors and determining the appropriate mix of funds for a particularly microfinance bank. Liquidity theory has been subjected to critical review by various authors. The general consensus is that during the period of distress, a bank may find it difficult to obtain the desired liquidity since the confidence of the market may have seriously affected and credit

worthiness would invariably be lacking. However, for a healthy microfinance, the liabilities constitute an important source of liquidity.

2.3 Accounting measurement of liquidity

Chandra (2001) defines current ratio as a liquidity ratio that measures a company's ability to pay short-term obligations. It's calculated as ratio of current assets to current liabilities. The ratio is mainly used to give an idea of the company's ability to pay back its short-term liabilities (debt and payables) with its short-term assets (cash, inventory, receivables). Rule of the thumb is that a ratio between 1.2 and 2.0 is sufficient. According to Stolowy and Lebas (2006) cash ratio is an indicator of a company's liquidity that further refines both the current ratio and the quick ratio by measuring the amount of cash; cash equivalents or invested funds there are in current assets to cover current liabilities. Cash to current liabilities is a ratio of cash and short-term marketable securities to divide current liabilities. Acid test ratio is a measure of assets that can be easily be converted to cash and is given by the total sum of cash, cash equivalents marketable securities and account receivables as a proportion of current liabilities.

2.3.1 Debt to equity ratio

Debt to equity ratio is calculated by dividing total liabilities by total equity. Total liabilities include all the MFI owes to others, including deposits, borrowings, accounts payable and other liabilities. Whereas total equity is total asset less total liability. It is the simplest and best known measure of capital adequacy because it measures the overall leverages of the institutions (AEMFI, 2014). According to the performance analysis report of AEMFI (2014) the average value of debt to equity ratio of Ethiopian MFIs stood at 204% during the study periods. Moreover, it pointed out; traditionally MFIs ability to borrow from commercial lenders has been somehow limited. Based on the mix market website dated July 25, 2015,the average score of debt to equity ratio attained by MFIs of Central Africa, Eastern Africa, western Africa and the entire continent of Africa 4, 3.14, 2.15 and 2.41 Given the average debt to equity ratio scored by these sub African regions, Ethiopian MFIs appeared to score normal result of debt to equity ratio, but still managed to score above the recommended threshold of 150% (AEMFI, 2012).However the maximum debt to equity ratio score of Ethiopian MFIs (11.15) appeared to look very high. Those MFIs scoring maximum DER

should be vigilant because theories suggest that higher DER bound to exert pressure on profit margin (sustainability and efficiency).

2 .3.2 Loan to Deposits Ratio (LDR)

According to Ferreiar, c, c (2008) Loan to deposit ratio is the most commonly used liquidity ratio by both banks and analysts. Basically, it measures the liquidity condition of the microfinance. For a listed microfinance, there are pressures from shareholders to see profit from operation. Generally, with higher LD ratio, the more likely the bank is relying on borrowed funds. If receivables from loans are delayed or withdrawals from deposit side exceeds new deposit significantly over a short term of period, bank will take more financial stress by having excessive loans and riskier to meet depositor's obligations by selling an amount of loans at loss. Loan to Deposits = Total Loans / Total Deposits

2.3.3 Deposit to Asset Ratio

The capital to assets ratio is a simple measure of the solvency for the financial institution. It is used to assets a MFIs ability to meet its obligations and absorb unexpected losses. For the regulated MFIs, there is a minimum solvency requirement stipulated by the regulator. The requirement of minimum capital to assets ratio depends on a MFIs assessment of its expected losses and its financial strength to absorb such losses. Expected losses should be covered through provisioning under the MFIs accounting policies. The capital to asset ratio measures the amount of capital required to cover additional unexpected losses and ensure that the MFI is well capitalized for potential shocks. Some lenders or investors may stipulate minimum capital to assets ratio for which they invest MFIs.

According to the Consultative Group to Assist the Poor (CGAP), MFI should be subject to even higher capital maintains a ratio than banks in the light of risks and vulnerability of MFI loan portfolio. They further advise MFIs to maintain a ratio up to 20 percent with subsequent performance-based relaxation to 12-15 percent. Ethiopian MFIs maintained an average capital to asset ratio of 36 percent. This is relatively higher, thanks to the contribution of donor-equity to MFIs and the policy of the government which empts MFIs with social objectives (which are not distributing dividend to shareholders from paying profit tax).

2 .3.4 Size of Microfinance (Total Asset)

Another factor that can affect the financial performance of an MFI is its size. The size of an MFI is measured by the value of its assets (Hermes et.al. 2008). According to cull et.al. (2007), the size of an MFI is significantly positively linked to its financial performance. This variable is included to capture the economies or diseconomies of scale. There is consensus in academic literature that economies of scale and synergies arise up to a certain level of size. Beyond that level, financial organizations become too complex to manage and diseconomies of scale arise. Total asset of MFIs is used as a proxy of size. It is argued that failure to become profitable in microfinance is partly due to lack of economies of scale Muriu (2011). This implies that profitable MFIs in Cameroon have a greater control of the domestic market, and therefore lending rates may remain high while deposit rates remain lower since larger MFIs may be perceived to be safer, therefore this high interest rate spread translates to and sustains higher profits margins. Cull et.al.(2007) point out that the size of MFIs and financial performance are significantly related but loan size is negatively related to financial performance. This means that controlling for other relevant factors; institutions that make smaller loans are not necessarily less profitable. But the result showed that larger loan sizes are associated with lower average costs for both individual-based lenders and solidarity group lenders. Since larger loan size is often taken to imply less outreach to the poor, the result could have negative implications.

2.4 Measuring Profitability

Pimentel et al, (2007) defined profitability as the final measure of economic success achieved by a company in relation to the capital invested in it. This economic success is determined by the magnitude of the net profit accounting to achieve an appropriate return over the amount of risk accepted by the shareholders, is the main objective of companies operating in capitalist economies. After all, profit is the propulsive element of any investments in different projects. The assessment of profitability is usually done through the ROA (Return on Assets = Net Income / Total Assets) and ROE (Return on Equity = Net Income / Equity), which is the ultimate measure of economic success. Whitehead (2001) defines ROA as the ratio that measures the Firm’s ability to use its assets to create profits.

2.4.1 Return on Asset (ROA)

Return on Asset indicates of how profitable a company is relative to its total assets. It is calculated by dividing net income after taxes and excluding any grants and donation by period average assets. It gives us an idea as to how efficient management is in using its assets to generate earnings. According to Wolday (2013), return on asset is the most common measure of profitability in banks and other commercial institutions. Rosenberg (2009) also stated that return on asset reflects that organizations ability to deploy its asset profitably. Return on asset measures how well the institution uses all its assets and it is also an overall measure of profitability reflecting both the profit margin and the efficiency of the institutions (Ledgerwood, 1999). Many scholars indicated that is an intuition is best in use of its assets to earn profit, and efficient it is said to be financially viable and financially sustainable. Mohd et al (2014), have made a study on the determinants of performance and financial self-sustainability of Microfinance and financial self-sustainability of Microfinance Institutions (MFIs) in Bangladesh. The study showed that ROA has a positive effect on Operational self-sufficiency and financial self-sufficiency of MFIs.

Another similar ratio for measuring profitability is ROE, unlike ROA, ROE measures the efficiency of using shareholder's equity to produce profit, which is the most concerned indicator for shareholders, banks with high ROE is normally viewed as profitable and promising by shareholders.

ROE=Net Income/Shareholders Equity

NPM (Net Profit Margin) measures the efficiency of translating revenue into profit, which indicates banks management ability of cost control, higher NPM is viewed as a favorable signal for good capability of cost management of banks.

Net Profit Margin=Net Profit/ Revenue

Another ratio for measuring profitability is NIM, which measures how much net interest earnings gained from banks business operations, it was calculated as the interest income minus expenses, then divided by average interest- bearing assets. Higher NIM represents higher profitability of bank operations.

NIM = Interest Income-Expenses / average interest-bearing assets

While profitability is the most concerned consideration of financial managers, the importance of profitability varies depends on the role of stakeholders. The depositors would take stability of deposits as priority, while shareholders would view profitability as the most important indicator, and debt holders may consider in-time repayment of financial obligation at first.

2.5 Review of Related Empirical Studies

This section gives evidence of what other researchers have observed and the findings in their research relating to the impact of liquidity and profitability Habtamu Nigussie (2012)..

Shin and Soenen (1998) investigated association involving a measure of the cash gap and company financial performance in their study of a large sample of listed American businesses for a twentyyear duration starting from 1975 to 1994; the results indicated a negative relationship. This shows that shareholders wealth is maximized by reducing the cash conversion cycle.

Obida and Owolabi (2012) carried out a study of manufacturing companies quoted on the Nigerian stock exchange on the effects liquidity have on company financial performance, using descriptive research they found that liquidity as measured in terms of cash conversion cycle, cash flows and credit policy have a significant effect on company financial performance and they concluded that financial performance as measured by profits may be improved by having short cash conversion cycle, employing good credit policy and having an efficient cash management policies.

According to Habtamu Nigussie (2012), study on determinants of bank profitability, there is a negative correlation between private commercial banks profitability measure; return on asset, and liquidity. That means the more the ratio of loan to deposit ratio of banks, the less the ROA of private commercial banks in Ethiopia. Hence, as to his finding liquidity level of private commercial banks included in the study (loan to deposit ratio) has no significant relationship with ROA. Similarly, he found that there is negative correlation between return on equity and liquidity. Liquidity has similar implication like return on asset, which means

although more liquid assets increase the ability to raise cash on short-notice; excess cash in the bank increases the level of nonearning asset. Thus, liquidity (as measure of loan to deposit ratio) has a negative relationship with return on equity. Although, there is negative relationship between return on equity and liquidity, it is significant, swhich means the more liquidity the bank, the lower the profitability. However, liquidity in terms of loan to deposit ratio) is highly correlated with NIM in his study but has negative and insignificant relationship with profitability. More so, the previous study of Bourke (1989, p.66, 76) points to that liquidity ratios, notably loan to assets, loan to deposits and cash ratios which contains data that are inherent in banks financial statement can affect profitability positively. As opposed to capital based return, their finding reveals that liquidity ratios and interest margin are positively related to bank profitability

The objective of ALM is to maintain a match in terms of rate sensitive assets with their funding sources in order to reduce rate of interest risk at the same time exploiting productivity. Interest rate risk refers to the risk that changes in the current market interest rates will be detrimental on the institution's financial liquidity risk. Financial liquidity risk will be impaired because the institution cannot adjust its income earned on loans growingly as the cost of these loans increases. The interest rate risk to some degree was unavoidable, but it was manageable manageable (Biety, 2003; Choundhry, 2011). ALM involves the management of the total statement of financial postion dynamics and it involves quantification of the risks and cognizant judgment with view to asset liability arrangement in turn to get the most out of the interest earnings within the support of apparent risks.

2.6 Knowledge Gap

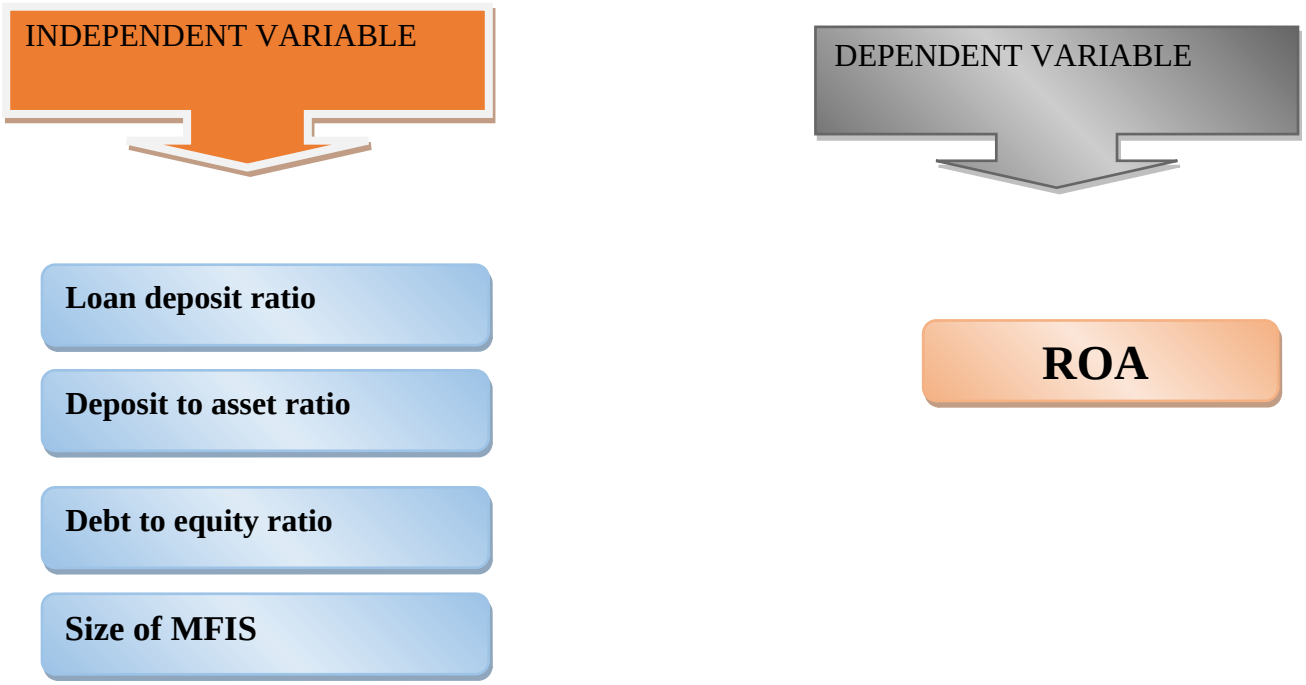
In this chapter the discussion about the essential theories namely: Quantitative liquidity theory, liquidity motive theory and suitability theory and other related empirical studies that influence liquidity on micro finance institution profitability. From the theoretical and empirical studies point view, there are contradicting conclusions existed between empirical studies about the impact of liquidity on financial performance of companies. In line with this theories and empirical studies, observed that, liquidity affects the profitability of firms in to positively or negatively. Therefore, evaluating the impact of liquidity on the profitability of all business firms is important, especially for financial industry Ike micro finance institutions. The profitability of MFIs has affected by d different factors such as company specific,

macroeconomic a regulatory factor. From those factors the liquidity is the most crucial parts in these business activities.

According to the empirical studies, there is no direct empirical literature which is related with impact of liquidity on profitability of MFIs in Ethiopia. So far, as to the knowledge of the researcher, there is no study directly linked with impact of liquidity on profitability of microfinance institution in Ethiopia. Even the existing studies were concentrated on determinate s of liquidity and financial performance of commercial banks, insurance company, constriction, manufacturing companies and other listed firms. To this end, the researcher is very much motivated to put his own contribution on the impact of liquidity on the profitability of microfinance institutions in Ethiopia.

2.7 Conceptual firearm work

According to Mugeude et.al (2000) a conceptual frame work helps the reader to quickly see the proposed relationship between the variables in the study and show the same graphically. In this study deposit to asset ratio, loan to deposit ratio, debt to equity ratio and size are independent variable whereas return on asset of profitability of MFIs is dependent variable.



Independent VariableDependent Variable

Source: developed by the researcher

Figure 2. 1; self-constructed conceptual framework

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter presents research design and methodology for the study. The first section of this chapter presented a research approach (the quantitative, qualitative and mixed method), following the research approach model specifications offered. Finally, the research method, which included data source, collection and analysis methods are presented

3.2. Research Approach

As noted in Creswell (2003), in an investigative study there are three familiar types of research approaches to business and social research namely, quantitative, qualitative and mixed methods approach. Creswell (2009) defined quantitative research as a formal, objective and systematic process in which numerical data are utilized to obtain information. Mmuya (2007) stated that qualitative research is an investigative methodology that is grounded in a philosophical position that focuses on making sense of the social world through a process involving how it is experienced, understood and interpreted. The qualitative method takes a theoretical and methodological focus on complex relations between personal and social meanings, individual and cultural practices and the material environment or context. Whereas, mixed research is characterized as the combination of both qualitative and quantitative research approaches. Considering the research problem and objective along with the philosophy of the different research approaches, the quantitative nature of the data collected, quantitative research approach was found to be appropriate for this study Besides, the researcher was used quantitative research approach to examine a stated objective because quantitative research is a systematic and scientific investigation of quantitative properties and phenomena and their relationships (Abiy, 2009).

3.3. Research Design

Research design is defined as “plans and procedures for research that span the decisions from broad assumptions to detailed planning regarding methods of data collection and analysis” (Creswell,
2009, p.3). There are three types of research design namely descriptive, expletory and explanatory.

Hence, to meet the objectives of this study, explanatory research design was adopted because Analytical or explanatory research is an extension of the descriptive research. The researcher not only describes the issue, but also analyses and explains the reasons why or how the issue being studied happened. Analytical research goes further by examining and measuring causal relationship among the factors in the phenomenon. The important elements of Analytical explanatory research are; Identification, Controlling, and Exploring causal links among factors a variable is a factor or characteristic of an issue which are observable and measurable (Abiy, 2009).

3.4. Target Population

The research was focused on the population of all MFIs' registered by NBE. As per NBE (2015/16) annual report 34 microfinance institutions are operating in Ethiopia.

3.5. Sample size and Sampling methods

A sample of a subject is taken from the total population to make inference about the population, because it is time consuming, there was no available full year audited data and expensive to collect data about every individual institutions in the population. However, where the selected sample can reliably represent the population, the sample can still be used to make inferences about the population (Collis and Hossey, 2003cited in Yonas, 2012). The study was used purposive sampling method to select a sample of twelve MFIs, which are ACSI, DECSI, OCSSCO, OMO ADCSI, SFPI, AVFS ,Meklit, Gasha , Buussagonfa, PEACE and Wasasa from the total population of 12 MFIs in the country due to limited data for other microfinance institution the researcher was selected the above MFIs purposively.

The criteria for choosing among the MFIs were based on the availability of full year audited data for the time period of 10 years (2007-2016). Therefore, based on the sample size and the time coverage, the sample consists of 120 observations. The study was collected secondary data of the respective MFIs from Association of Ethiopian Micro finance Institutions bulletins (AEMFI).

3.6. Data type and sources

Given the research design, secondary data was used to meet the objectives of the study. According to Stewart and Kamins (1993) cited in Li Yuqi (2007), secondary data have its own advantages. Compared to primary data, secondary data gives higher quality data, the feasibility to conduct longitudinal studies and the permanence of data. That is, secondary data

generally provide a source of data that is both permanent and available in a form that can be checked relatively easily by others and increases the dependability of the data, hence ensure data quality. The data types were secondary data and was analyzed by explanatory design that were the financial statements of the MFIs that will be get from the association of microfinance institution in Ethiopia.

3.7. Data Collected

The data used for the study are from secondary sources especially from financial statements of micro-finance. Data was obtained from 12 MFIs. Purposive sampling technique was used in Selecting these twelve. The basic data was obtained from the Annual Report of the from 2007 to 2016.

3.8. Methods of Data Analysis

To achieve the objectives the study, panel data of 12 microfinance institutions for ten years (2007 to 2016) was used. This was because of that panel data has the advantage of giving more informative data as it consists of both the cross-sectional information, which captures individual variability, and the time-series information, that captures dynamic natures of the data. And hence it ensures more variability, more degrees of freedom, more efficiency, and less collinearity among variables (Gujarati, 2004).

Thus, the collected panel data was analyzed using descriptive statistics, correlations, multiple linear regression analysis. In the analysis of the descriptive statistics, the mean, standard deviation, maximum and minimum values were used to analyze the trends of the data. The multiple linear regressions model was run, and thus OLS was conducted using EVIEWS 8 econometric software package. The rational for choosing OLS is as noted in Petra (2007) that OLS outperforms the other estimators when the following holds; the cross section is small and the time dimension is short. Therefore, as far as both the above facts hold true in this study it is rational to use OLS.Specifically, the assumption tests that were managed in this study include Heteroscedasticity Test, Autocorrelation Test, and test for Multicollinearity and Normality. Finally, the Hausman specification test was used to choose the appropriate model for this study between the random effect (RE) and fixed effect (FE) model. Thus, based on the result of this test, the fixed effects model was found to be appropriate and applied for the study.

Therefore, the multiple regression result of the fixed effect model used to analyze the impact of liquidity on profitability of microfinance institutions in Ethiopia, and to examine the relationship between the variables used in this study.

3.9 Variable of the study and their operational definition

3.9.1 Dependent variable

MFIs profitability is the dependent variable in this study. MFIs performance is usually measured by three alternative measures ROA, ROE or NIM. Studies conducted on this area used one or a combination of these ratios as a measure of profitability in their analysis. According to Mohana et al. (2012), the choice of the financial performance ratios (ROA, ROE, NIM) depends on the objective of the performance measure since the output of each of the performance measure difference. From financial institutions, like MFIs profitability masseurs' alternatives ROA was choose because it has important accounting based and widely accepted measures of financial performance.

3.9. 2 Independent Variables

Four variables used as independent variables which were extracted from different studies. Those variables namely, loan to deposit ratio, deposit to asset ratio, debt equity ratio, and size of microfinance were choose based on previous research works conducted in the area of microfinance institutions performance and other theoretical literature,. These variables can be measured by the following formulas:

Debt to equity Ratio (DER); Debt to equity ratio is a ratio that indicates the proportion of a company's debt to its total asset. It shows how much the company depends on debt to finance the firm's asset. The debt to asset ratio gives users a quick measure of the amount of debt that the company has on its balance sheets compared to its assets. The higher the ratio, the greater the risk associated with the firm's operation. A low debt ratio indicates conservative financing with an opportunity to borrow in the future at no significant risk.

Debt to asset ratio is similar to debt to equity ratio which shows the same proportion but in different way. The debt ratio is calculated by dividing total liabilities (i.e. long-term and short term liabilities) by total assets:

DER= Total liability

Total equity

Deposit to Asset Ratio (DAR) ;As the major source of external finance is deposits, deposit to asset ratio was used as an independent variable to examine the impact of deposit on profitability of microfinance institutions in Ethiopia. Since the total debt of MFIs composed of deposit and nondeposit liabilities, this variable intended to show the impact of deposit-financing and hence the no deposit financing decision on profitability. Abbadi & A bu-Rub (2012) found Positive relationship between deposit to asset and profitability. Based on the nature of financial institutions operation and empirical evidences, in this study a positive relationship between deposit to asset ratio and profitability of MFIs were expected.

DAR= Total Deposit

Total Asset

Loan to Deposit (LDR); The Loan to deposit ratio (LTDR) serves as financial institutions liquidity measure. It measures the funds that MFIs utilized into loans from the collected deposits in the period under study. It validates the association between loans and deposits. Furthermore, as it is indicated in Makrit provides a measure of income source and the liquidity of bank asset tied to loan. Eltabakh, N gamkroeckjoti, & Siad (2014) found statistically significant positive relationship between profitability and loan to deposit ratio. Since, the major source of interest income comes from loans and with reference to empirical studies, in this study it was expected to have positive relation with profitability of MFIs.

LDR = Total loan

Deposit

Asset Size (SIZE) Asset size of MFIs was considered in this study as a control variable. In addition to its role as a control variable, size was introduced to determine whether economies or diseconomies of scale exist in the microfinance sector of Ethiopia. Opoku et al. (2013) used as a control variable in the study of the impact of capital structure and profitability of financial institutions on the Ghana Stock Exchange. Arkhavein (1997) found a significantly positive association between size and financial institutions profitability. Moreover, Short (1979) suggested that that since relatively large financial institutions tend to raise less expensive capital and hence appear more profitable, size is closely related to capital adequacy of a financial institutions. The implication is that as MFI size increases, profitability increases as well. For the purpose of this study, MFIs size has been taken as the natural logarithm of

their total assets of the institutions. The use of logarithm enables to get the real total assets of the MFIs due to its capability to standardize values thus bringing them on the same platform for a more efficient analysis to be done.

3.10 .Regression Analysis model

Multiple regression analysis was used to determine the relationship between two or more independent variable and one dependent variable by calculating the coefficient of multiple determination and regression equation (saunders et al., 2009).practically multiple regression analysis provide an understanding on whether there is a relationship exists between the independent variables and dependent variables ,how strong the relationship is positively or negatively skewed and proper way to describe the relationship(hair et al.,2006).the fallowing multiple regression model will be adopted for this study.

$$\mathbf{Yit= \alpha+\beta 1X1i+ \beta 2X2i+ \beta 3X3i\ldots+ \beta nXni+ \varepsilon it}$$

Standard I – goes from 1 to N and indicates the observation number

Yi – The value of dependent variable; ROA- profitability indicator. α – The constant term; β – The coefficient of the function; Xi – The value of independent variables: εi – The disturbance or error term. Based on all the above information, the study performed the following regressions:

$$Yit=\beta 0+\beta 1\ (DLRit)\ +\beta 2\ (DARit)\ +\beta 3\ (DERit)\ +\beta 4\ (LNTAit)\ +\varepsilon it$$

Whereas:

Y: return on asset

LDR: loan to deposit ratio

DAR: deposit to asset ratio

DER: debt to equity ratio

LNTA: size

3.11. Summary of Variables, their Measures and Expected Sign

In this section, the summery of variables, their measure and expected sign was discussed. The dependent variable in this study is Return on Asset (ROA) and explanatory variables are; debt to equity ratio, deposit to asset ratio, loan to deposit ratio and the control variables are firm

size are used. The selection measures for dependent variable is Return on Asset (ROA), which is proxy to MFIs profitability and for independent variables are detailed as follows, which is measure the level of liquidity of institution. The description of each variable and their expected signs are given below in the following tables.

Table 3. 1Summary of Variables, their Measures and expected sign

Variable		Definition	Mathematical Expiration	Expected Sign.
Explained Variable	Return on Asset (ROA)	The ratio of net income after tax divided by Equity	ROA = Net Income / Total Asset	NA
Explanatory Variable or **Control Variables**	The debt to equity ratio (DER)	Total Debt Divided By Total Asset	DER = Total Liability / Total equity	-
	(Deposit) to Assets Ratio	Total deposit divided by Total Assets	DAR=Total Deposit / Total Assets	+
	Loan to Deposit Ratio	Total Loan divided by Total Deposit	DLR=Total Loan / Total Deposit	+
	Size	Natural logarithm of Total Asset	SIZE =LNTA (Total Asset)	+

Source: compiled by researcher

CHAPTER FOUR

4 DATA ANLYSIS AND INTERPRETATION

4.1 Descriptive Statistics

This section presents the descriptive statistics of dependent and independent variables used in the study for the sample MFIs. The explained variable used in this study was ROA while the explanatory variableare debt to equity ratio, deposit to asset ratio, loan to deposit ratio, MFIs size. Thus, the total observation for each dependent and independent variable was 120 (panel data of 12 MFIs for 10 years). The table 4.1 demonstrates the mean, median, maximum, minimum and standard deviation values f or dependent and independent variables for sample MFIs over the year

2007-2016.The descriptive statistics for the endogenous and exogenousVariables are presented in Table 4.1 below**:**

Table4.1Descriptive Statistics of Dependent and Independent Variables

	ROA	DER	DLR	DAR	SIZE
Mean	0.025829	2.304158	0.335917	0.29205	8.16431
Median	0.03	1.99	0.29	0.246	7.948683
Maximum	1.2	11.15	4.556	5.923	9.927381
Minimum	-1.494	-0.14	0	0	6.713233
Std. Dev.	0.184019	1.852835	0.43535	0.554585	0.852592
Observations	120	120	120	120	120

Source: *Computed from Eviews 8 result*

As measured in the above table 4.1, the mean value of ROA, a measure of profitability (dependent variable) which is measured by dividing Net Income by Total asset of the institution has a mean value of 0.025. This result revealed that on average for every birr investment in MFIs would earn a 2.5 percent return. The other measure, median which is not affected by extreme values similarly shows that microfinance institutions have a returns of 3 percent financed through their profit. The higher shows that the company is more efficient in using its resources and reflects the ability of management to generate profits from the MFIs. The maximum ROA was 1.2 and the minimum value was -1.494. This implies that the most profitable MFI earns 1.2 cents income and not profitable MFI loss-

1.494 cents income for a single birr investment in the firm's profit. The standard deviation 0.184 reflects the presence of variation in earned profit among across the sampled MFIs.

The independent variable, debt to equity ratio, which is measured by total debt divided by total asset of MFIs have a mean and median value of 2.304158 and 1.99 respectively, that means during the study period the sampled MFIs finance their assets by using 2.3 percent of debt this implies that there men value of the sampled microfinance was higher than proposed standard of 1.5. In addition the maximum and minimum values are 11.15 and -0.14 respectively. The values of debt equity ratio deviate from its mean to both side by 1.8 percent. The other independent variable, deposit to asset ratio measured by dividing total customers deposit to assets ratio of the sampled microfinance institutions during the study period was 29 percent, it reveals that total deposit represents on average 29 percent of total assets of microfinance institutions in Ethiopia. The highest deposit to asset ratio for a microfinance institution in a particular year was 5.923 percent and in the same way the minimum ratio of a MFI in a year was 0. The value of deposit to asset ratio deviates from its mean to both sides by 5.5 percent.

The mean of firm size was represented by natural logarithm of book value of total assets has a mean value of approximately 8.164, with a maximum and minimum value for the sample MFIs in the study period were 9.92 and 6.713 respectively. In addition the standard deviation of the size of the MFI was 0.852592. This shows the variation in the total assets of MFIs in the study period.

Deposit to Loan ratio represented by total loan divided by the customer deposit of the sample MFIs in the study period have a mean value of 0.335917. It reveals that loan represents much more above the deposit of MFIs in Ethiopia. The maximum loan to deposit ratio for the MFI in a sample year was 4.556 and the minimum was 0 this result tells us that, MFIs loan advances to customers from deposit and non-deposit sources of finance. The value of loan to deposit ratio deviate from its mean on both sides by 0.43535.

4.2. Correlation Analysis

According to Brooks (2008), correlation between two variables measures the degree of linear association between them. Pearson product moment of correlation coefficient was used to find the association of the independent variables with the dependent variable. Values of the

correlation coefficient are always ranged between positive one and negative one. A correlation coefficient of positive one indicates that a perfect positive association between the two variables; while a correlation coefficient of negative one indicates that a perfect negative association between the two variables. A correlation coefficient of zero, on the other hand, indicates that there is no linear relationship between the two variables. Hence, the analysis of the relationship between dependent variable (ROA) and independent variables (DER, DLD, DAR and SIZE) is detailed in Table 4.2 as follows using the correlation matrix.

Table4. 2 Correlation Matrix for Dependent and Independent Variables

	ROA	DER	DLR	DAR	SIZE
ROA	1	0.064732	-0.63787	-0.56295	0.051481
DER	0.064732	1	-0.01809	-0.07141	0.37809
DLR	-0.63787	-0.01809	1	0.9008463	0.307936
DAR	-0.56295	-0.07141	0.9008463	1	0.144048
SIZE	0.051481	0.37809	0.307936	0.144048	1

Source; Computed from Eviews 8 result

By taking a correlation result which is presented above from 2007 up to 2016 the study period the independent variables to dependent variable which is ROA. The result indicated in the table above DLR and DAR had negative correlation to ROA with coefficient of correlation -0.63787, and 0.56295 respectively. DER and SIZE of MFIs had positive correlation to ROA with correlation coefficient of 0.064732 and 0.051481 respectively. Hence, the results have to be interpreted in: positive sign of the coefficient means positive linear relationship with return on asset and vice versa.

4.3. Tests for the Classical Linear Regression Model (CLRM) Assumptions

To make the data ready for analysis and to get reliable output from the research, different tests was done. From those different tests, the five most critical assumptions related to classical linear regression model (CLRM) are the most critical on econometric analysis. Accordingly, the tests of CLRM assumptions are presented below.

4.3.1 Test for average value of the error term is zero (E (ut) = 0) assumption

The constant term (i.e. **α**) was included in the regression equation. Therefore, the average value of the error term in this study was expected to be zero.

4.3.2 Test for homoscedasticity assumption (Var (ut) = σ2)

According to Brooks, (2008) it has been assumed thus far that the variance of the errors is constant, $\sigma 2$ - this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be Heteroscedasticity. To test for the presence of Heteroscedasticity, the popular white test was employed.

Table4. 4Heteroscedasticity Test whites

Heteroscedasticity Test: White

F-statistic	0.481544	Prob. F(10,109)	0.8989
Obs*R-squared	5.077100	Prob. Chi-Square(10)	0.8860
Scaled explained SS	12.23445	Prob. Chi-Square(10)	0.2697

Source; Computed from Eviews 8 result

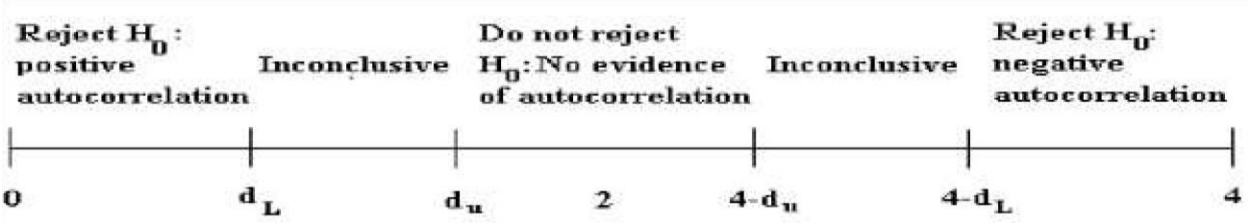
The above table show that Whit's test of heteroscedasticity. The test shown in table 4.4, the Fstatistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values were in excess of 0.05.

4.3.3. Test for absence of autocorrelation assumption

This assumption states that the covariance between the errors term overtime or cross-sectional is zero or simply errors are uncorrelated with one another. But if the errors are not uncorrelated with one another, they are said to be auto correlated or that they are "serially correlated". (Brooks 2008) To test the presence of autocorrelation, the Durbin-Watson test is used. As noted in Brooks (2008), Durbin Watson is a test for first order autocorrelation (it is a test f or a relationship between an error and its immediate previous value). The null hypothesis for the DW test is no autocorrelation between the error term and its lag. According to Brooks (2008), DW has two critical values: an upper critical value (dU) and a lower critical value (dL), and there is also an intermediate region where the null hypothesis of no

autocorrelation cannot rejected. The rejection, non-rejection, and inconclusive regions are shown on the number line in figure 4.1 bellow.

Figure 4. 2Rejection and Non-Rejection Regions for DW Test



The study used the dL and dU values for 120 observations. As per the Durbin-Watson test (DW) table for 120 observations with 4 explanatory variables at 1% level of significance, the d L and dU values are 1.338 and 1.653 , respectively. The D W values for model and for 120 observations were1.316597. The relevant critical values for the test are dL= 1.336, dU = 1.63, and 4 - dU = 4 1.69 = 2.31; 4 - dL = 4 -1.336 = 2.664. Accordingly, Durbin-Watson test value is clearly between 1.336 and 1.69 which is 1.36and the DW value is lies in the non-rejection region, where as the null hypothesis do not reject. The Durbin Watson test is an indication of the absence of autocorrelation. Therefore, the Durbin Watson test of 1.36597 shows the absence of auto-correlation problem in the model.

4.3.4. Test for absence of series Multicollinearity assumption

Multicollinearity problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as Multicollinearity. There are two Classes of Multicollinearity: perfect Multicollinearity and near Multicollinearity. Perfect Multicollinearity occurs when there is an exact relationship between two or more variables. In this case, it is not possible to estimate all of the coefficients in the model. Perfect Multicollinearity will usually be observed only when the same explanatory variable is inadvertently used twice in a regression. Whereas, near Multicollinearity is much more likely to occur in practice, and would arise when there was a non-negligible, but not perfect, relationship between two or more of the explanatory variables.

In order to examine the possible degree of Multicollinearity among the explanatory variables, and to test the independence of the explanatory variables or to detect any Multicollinearity problem in regression model the study used a correlation matrix of independent variables.

As it is shown in T able 4.6 below, there is no strong correlation between the explanatory variables (DER, DLR, SIZE, and DAR). As noted by Gujarati, (2003), Hair et a l. (2006) and

Pallant (2005) cited on Mohammed G. (2014), inter-correlation among independent variables is above from 0.9, causes serious Multicollinearity problem but correlation coefficient below 0.9 not cause serious Multicollinearity problem. As shown in table 4.4, correlation between size and DER (0.378) and DAR and DLR (0.9) are relatively higher than the rest coefficients, but it can be said fair. The rest of the correlation coefficients were low indicating the absence of Multicollinearity in this study; making the regression analysis more reliable. The result of the final test for Multicollinearity of this study is presented in Table 4.4 below, so that no Multicollinearity problem among existing explanatory variables shown.

Table 5.4Correlation Matrix between Explanatory Variables

	DER	DLR	DAR	SIZE
DER	1			
DLR	-0.01809	1		
DAR	-0.07141	0.9008463	1	
SIZE	0.37809	0.307936	0.144048	1

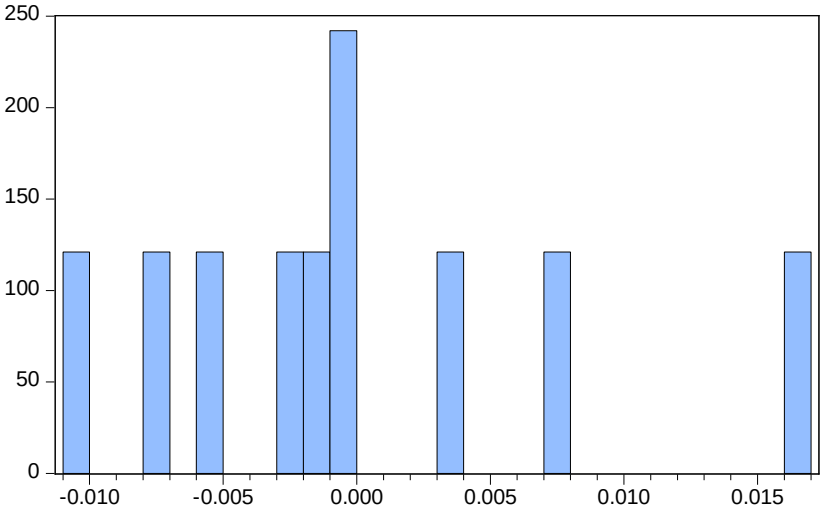
Source; Computed from Eviews 8 result

4.3.5. Test for normality assumption (ut ∼N (0, σ2)

Normality, the most fundamental assumption in data analysis, refers to the shape of data distribution for an individual metric variable. Normality is tested using graphical and statistical tests.

This normality assumption '(ut ∼ N (0, σ2))' is required in or der to conduct s ingle or joint hypothesis tests about the model parameters (Brooks 2008). One of the most commonly applied tests for normality is the B era-Jarque (BJ) test. Bera-Jarque uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance (Brooks, 2008). In case of this study, the researcher used Bera-Jarque test to check normality assumptions.

As shown in the graph 4.2 below kurtosis approaches to 3 (i.e. 3.10), and the Bera-Jarque statistic p-value was not significant even at 5% significance level as per the P values shown in the histogram below, has a P-value of 0.18. Hence, the null hypothesis that is the error term is normally distributed should not be rejected and it seems that the error term in all of the cases follows the normal distribution. So, the residuals are normally distributed in this study, concluded that there is no the problem of normality on models.



Series: Standardized Residuals	
Sample 2007 2016	
Observations 1210	
Mean	-1.33e-15
Median	-0.001441
Maximum	0.016796
Minimum	-0.010399
Std. Dev.	0.007432
Skewness	0.869093
Kurtosis	3.231919
Jarque-Bera	155.0352
Probability	0.000000

Figure4. 3: Graphical Test of Normality Using Histogram

4.4. Model Selection; Fixed Effect versus Random Effect Models

As noted in Brooks (2008), there are two panel data estimator approaches that can be employed in financial research: fixed effects model and random effects model. The fixed effect regression model is the model to use when researcher wants to control for omitted variables that differ between cases but are constant over time. It allows using the changes in the variables over time to estimate the effects of the independent variables on de pendent variables (Li Yuqi, 2007). It allows using the variation between cases to estimate the effect of the omitted independent variables on de pendent variable. In contrast, if have reasons to believe that some omitted variables may be constant over time but vary between cases and others may be fixed between cases but overtime, then can include both types by using random effects (Li Yuqi 2007).

For choosing the best way for data analysis running the Hausman test distinguishes the appropriate model. The Hausman test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results (Li Yuqi, 2007).

According to Brooks (2008), if the p-value for Hausman test is less than 5%, this shows the fixed effects model is an appropriate than random effects model. According to Table 4.6 below, the Hausman specification tests shows that the model has a P-value of (0.0001). This indicates that the fixed effect model is preferred. Therefore, in this study fixed effect model was used to test the impact of liquidity on MFIs profitability.

Table4. 6Hausman test for Fixed, Random Effect Correlated

Correlated Random Effects - Hausman Test

Equation: Untitled

Test Summary	Chi -Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	24.831472	4	0.0001

cross-section random effects

** WARNING: estimated cross-section random effects variance is zero.

**Statistically significant in 1%*

Source: *Computed from Eviews 8 result*

4.5. Regression Analysis Results

As shown in chapter three, the model used to find out and explain the association between the dependent variable and the independent variables was:

$ROA_{i.t} = \alpha + \beta 1\ (DER)_{i.t} + \beta 2\ (DLR)_{i.t} + \beta 3\ (DAR)_{i.t} + \beta 4\ (SIZE)_{i.t} + \varepsilon_{i.t}$

Where:

ROA=return on asset

DER = debt to equity ratio

DAR = deposit to asset ratio

LDR = loan to deposit

ratio SIZE = firm size

ε =error term

Under the following fixed effect regression output the beta coefficient shows positive and negative values. Beta coefficient indicates the level of influence of independent variables over dependent variable. The P-value indicates at what percentage or precession level of each variable is significant. R_2 values indicate the explanatory power of the independent variables over dependent variable. Therefore, the next part discusses the output of fixed effect model in detail.

As the below table 4.7 shows, the fixed effect panel data regression model was implemented to identify the relationship between the dependent variable and the independent variables.

Dependent Variable: ROA
Method: Least Squares
Date: 12/27/20 Time: 15:58
Sample: 2007 2016
Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLR	0.054567	0.103516	0.527133	0.6206
DER	-0.025368	0.021357	-1.187811	0.2883
DAR	-0.201646	0.229788	-0.877531	0.4204
C	-0.404471	0.169829	-2.381642	0.0630
SIZE	0.060910	0.021022	2.897402	0.0339

R-squared	0.664452	Mean dependent var	0.056100
Adjusted R-squared	0.396014	S.D. dependent var	0.013519
S.E. of regression	0.010507	Akaike info criterion	-5.966774
Sum squared resid	0.000552	Schwarz criterion	-5.815481
Log likelihood	34.83387	Hannan-Quinn criter.	-6.132742
F-statistic	2.475249	Durbin-Watson stat	2.325700
Prob(F-statistic)	0.173561		

The fixed effect regression result shown in the table 4.7 above, the R^2 is 0.664452 which indicates that the independent variables that were used in this study explains 66 .6percent of the dependent variable. The remaining 33.33% is influenced by other factors that are not

included in this study. Meaning that, other factors that are not studied in this research affects 33.33 percent of MFIs profitability, which is giving room for further research to investigate the other factors. Hence, this area is indicated as a scope for future research.

As the above table 4.7 presents, deposit to asset ratio ,size and loan to deposit ratio had a positive and statistically significant influence at 1 % level on MFIs profitability(ROA), , but debt to equity ratio had an effect of negative for profitability of MFIs in Ethiopia of which statistically in significant influence at 5% level. P-value (F-Statistic) 0.000000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

4.6. Discussion on Regression Results

The preceding section presents the overall results of the study, and this section discusses the general result of each explanatory variables based on fixed effect regression results indicated in the table 4.7 above.

Debt to equity Ratio; The results of fixed effect model in table 4.7 indicated that the coefficient of the debt to equity ratio (DER) negative -0.006979 and statistically negative in significant even at 5%. This confirms that for the study period 2007up to 2016 liquidity of Ethiopian MFIs do have a positive relationship with return on asset as a proxy of profitability. This indicates that all other variables holding constant, decreasing DER by one unit to ROA-0.006979 by units which means it decrease the financial health of the institutions. When ROA increases the profitability of the institutions was decreases. Therefore hypothesis No. H2: There is a negative significant relationship between debt to equity ratio of microfinance institutions and profitability of Ethiopian MFIs. Which is debt equity ratio has negative significant relationship with return on asset as a proxy of profitability of MFIs in Ethiopia was accepted because the data support the hypothesis.

Deposit to Asset ratio; the result of fixed effect model table 4.7 indicated that Deposit to asset had positive relationship with profitability with strongly statistically significant (p-value = 0.000) at 1% level. And it was in accordance with the expected sign. This implies that every 1 birr change (increase or decrease) in MFIs deposit to asset ratio keeping other things constant had a resultant change of 43cents (Coeff. =0.434905) on the profitability in the same direction. This result also shows that financing with deposit have a positive impact on profitability of MFIs in Ethiopia. The possible reason could be that the cost (interest expense)

associated debt financing through deposit mobilization is cheaper in the context of Ethiopia microfinance business operations.

Loan to Deposit ratio; the result of fixed effect model table 4.8 indicated that loan to deposit had negative relationship with profitability (return on asset) and statistically significant with p -value = 0.000 a t 1% level, and it was in accordance with the expected sign. This implies that every 1 birr change (increase or decrease) in MFIs loan to deposit ratio keeping other things constant had a resultant change of -85 cents (Coeff.=-0.857590) on the profitability (return on asset) in the opposite direction. This result also shows that an increase in amount of loan advances to customers from deposit financing has a negative impact on profitability of Ethiopian microfinance industry. The possible reason could be that the interest income associated with loan advances financed by deposit sources was greater than the costs or interest paid to depositors.

Size; H3: size of a microfinance institution is significantly and positively related to profitability of MFIs in Ethiopia.

As the study measured size by taking the natural logarithm of total assets of the MFIs, the coefficient was positive (0.246759) and was statically significant to be encompassed as a significant variable in this study. The result of fixed effect model in table 4.8 indicated that firm size had positive relationships with the profitability of microfinance institutions, and statistically significant (p-value =0.0000), even at 1% significant level. This implies that every one percent change increase in the MFI size keeping other things constant had a resultant in 24.6 percent change on the profitability in the same direction. The results suggested that as the MFI gating bigger in its asset size, the more profitable it becomes. The possible reason is that, larger firms are that much more flexible than smaller ones for having a better return. So, the positive coefficient of size indicates that microfinance institutions tend to be efficient when they become too large (i.e. this finding is consistent with the economies of scale theory). This is consistent with previous studies indicated an opposite negative relationship, for example, Zacharias, 2008.

On the contrary, Rajan and Zingles (1995) find that there is no evidence to support the effect of firm size on performance, based on a comparative study of firms in G7 countries. But others like (Zeitun and Tian 2007), (Lee 2009), (Velnampy and Nimalathasan 2 010) finds a

positive relationship between firm size and profitability. The summery of actual and expected sign is presented in the following Table 4.8 below:

Table4. 8The Summary of expected and actual signs of explanatory variables

Explanatory Variables	Expected Impact on Profitability	Explained Variable (ROA) Profitabilit y	Decision
Debt to equity Ratio (DER)	Negative and Significant	Negative and in Significant	Accepted
Deposit to Asset Ratio (DAR)	Positive and Significant	Positive and Significant	Accepted
Firm (Asset) Size (SIZE)	Positive and Significant	Positive and Significant	Accepted
Loan to Deposit Ratio (DLR)	Positive and Significant	Negative and Significant	Rejected

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Introduction

The previous chapter presented the results and finding of the study while this chapter discusses about conclusions and recommendations based on the results and findings.

Accordingly this chapter is organized into two sub-sections. Section 5.1 presents the conclusions and section 5.2 presents the recommendations.

The main objective of this study was to examine the impact of liquidity on profitability of microfinance institutions in Ethiopia and additionally the relationships between other four explanatory variables and profitability of MFIs in Ethiopian. To achieve the intended objectives the study used quantitative approaches panel data analysis methodology. The panel data were collected from audited financial statements particularly associations of microfinance institution bulletins of a sampled twelve MFIs over the time period from 2007GC to 2016 GC. The collected data were analyzed through a fixed effect model using statistical package 'Eviews 8.

In order to conduct the empirical analysis, one dependent variable and four independent variables were s elected from prominent previous research works on the impact of liquidity on profitability of various industries through giving emphasis on finance sector specially microfinance sector. Return on Asset as a measure of profitability of MFIs were dependent variable, while the independent variables were debt to equity ratio, deposit to asset ratio, firm size and loan to deposit ratio.

It was observed that on average 33.5% of the total profit of MFIs in Ethiopia in the period under study was made up of loan. Of this, 29.25% constitute deposit, this high amount composed of deposit mobilized as compulsory and noncompulsory savings from their clients, and the remaining was non-deposit liabilities. This has the fact that MFIs are highly liquid institutions which is above minimum level of liquidity according to National Bank of Ethiopia microfinance institution shall maintain at all times liquid asset at least to 20% their total deposits.

The results of the fixed effect estimation model showed the existence of the following relationship between profitability and four independent variables. Liquidity as measured by deposit to asset ratio had statistically significant positive relationship with profitability, which was in line with prior expectation. This result also supports the theory and prefers of using more borrowed funds to raise their assets so that to maximize their financial return, the other variable debt to equity ratio had statistically not significant and negative relationship with profitability, which was also opposite in line with prior expectation. Similarly, loan to deposit had also a negative and statistically significant relationship with

profitability, which was also in opposite line the expected sign. Furthermore, the effect of other variable on profitability of MFIs in this study, the result shows that as there was positive and statistically significant relationship between size and profitability, which is in line with prior expectation. Finally concluded that, the finding of the study indicate that liquidity was significant impact on profitability of microfinance institutions in Ethiopia.

5.2. Recommendations

Based on the findings obtained from the result of the study, the researcher forwards the following recommendations; In line with the results of this study microfinance institution management should pay greater attention to those significant variables in determining their optimal liquidity and optimize level of profitability of their micro finance institution of Ethiopia. This study's results conclude that a positive relationship exists between liquidity and profitability in Ethiopian microfinance institution. The research recommends that Central Bank of Ethiopia be strict on liquidity ratio minimum and maintain it at 20% as this will have a upward effect on the earnings of the microfinance and ensure stability in the financial industry and economy in general in the short and long term.

Microfinance institution should not only focus on profitability alone but also ensure that there is effective and efficient liquidity management. This will enhance the growth of the Ethiopian microfinance. MFIs should also not have excessive liquidity but also have other ways of maintaining liquidity such as borrowing or discounting bills. The excessive liquidity should be invested in short term instruments to increase return on investments.

As a result the study recommend that microfinance should put strategies in place for monitoring, reporting and reviewing liquidity levels to ensure the long and short term stability of the entire systems. Since the survival of microfinance depend on liquidity management and profitability, they should not solely concentrate on the profit maximization goal but should also adopt measures that will ensure proper liquidity management

5.2.1. For Future Researchers

This study paper had put some ground work to explore the impact of liquidity on profitability of microfinance business in Ethiopia, by using debt to equity ratio, deposit to

asset ratio, firm size and loan to deposit ratio to measure their effects on microfinance profitability.

Further work is required to develop new hypotheses and design new variables by using other liquidity ratio measurements and profitability measurement variables which were not included in this research work with theory of liquidity and profitability.

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APPENDIX

1Descriptive Statistics of Dependent and Independent Variables

	ROA	DER	DLR	DAR	SIZE
Mean	0.025829	2.304158	0.335917	0.29205	8.16431
Median	0.03	1.99	0.29	0.246	7.948683
Maximum	1.2	11.15	4.556	5.923	9.927381
Minimum	-1.494	-0.14	0	0	6.713233
Std. Dev.	0.184019	1.852835	0.43535	0.554585	0.852592
Observations	120	120	120	120	120

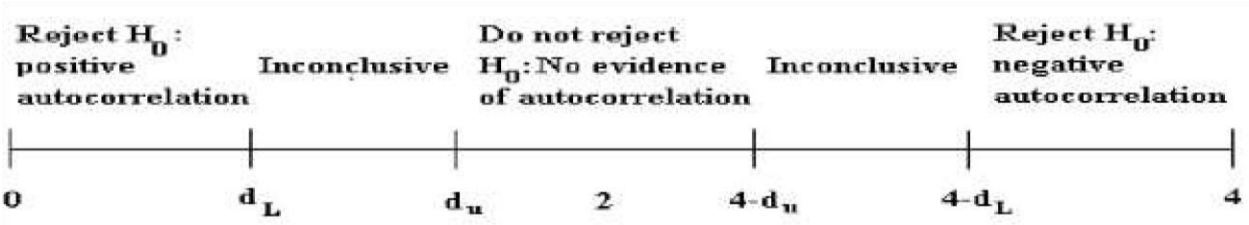
Correlation Matrix for Dependent and Independent Variables

	ROA	DER	DLR	DAR	SIZE
ROA	1	0.064732	-0.63787	-0.56295	0.051481
DER	0.064732	1	-0.01809	-0.07141	0.37809
DLR	-0.63787	-0.01809	1	0.9008463	0.307936
DAR	-0.56295	-0.07141	0.9008463	1	0.144048
SIZE	0.051481	0.37809	0.307936	0.144048	1

Heteroscedasticity Test: White

F-statistic	0.481544	Prob. F(10,109)	0.8989
Obs*R-squared	5.077100	Prob. Chi-Square(10)	0.8860
Scaled explained SS	12.23445	Prob. Chi-Square(10)	0.2697

2Rejection and Non-Rejection Regions for DW Test



4Correlation Matrix between Explanatory Variables

	DER	DLR	DAR	SIZE
DER	1			
DLR	-0.01809	1		
DAR	-0.07141	0.9008463	1	
SIZE	0.37809	0.307936	0.144048	1

Dependent Variable: ROA
Method: Least Squares
Date: 12/27/20 Time: 15:58
Sample: 2007 2016
Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLR	0.054567	0.103516	0.527133	0.6206
DER	-0.025368	0.021357	-1.187811	0.2883
DAR	-0.201646	0.229788	-0.877531	0.4204
C	-0.404471	0.169829	-2.381642	0.0630
SIZE	0.060910	0.021022	2.897402	0.0339

R-squared	0.664452	Mean dependent var	0.056100
Adjusted R-squared	0.396014	S.D. dependent var	0.013519
S.E. of regression	0.010507	Akaike info criterion	-5.966774
Sum squared resid	0.000552	Schwarz criterion	-5.815481
Log likelihood	34.83387	Hannan-Quinn criter.	-6.132742
F-statistic	2.475249	Durbin-Watson stat	2.325700
Prob(F-statistic)	0.173561		